age was 53.3 ± 11.21 years, educated till secondary level (39.4%), Malays (44.2%) and married for 27.73 ± 12.12 years. Life expectancy gained from vaccination is 13.04 years and average Quality Adjusted Life-years saved (QALYs) is 24.40 in vaccinated versus 6.29 in unvaccinated women. Cost/QALYs saved for Pap smear at base case is RM 1214.96/QALYs and RM 1100.01/QALYs at increased screening coverage. In HPV vaccination, base case is at RM 35,346.79/QALYs and RM 46,530.08/QALYs when vaccination price is increased. In combined strategy, cost/QALYs at base case is RM 11,289.58/QALYs; RM 7712.74/QALYs at best case and RM 14,590.37/QALYs at worst case scenario. Incremental cost-effectiveness ratio (ICER) showed that screening at 70% coverage or higher is highly cost effective at RM 946.74 per QALYs saved and this is followed by combined strategy at RM 35,346.67 per QALYs saved. Budget impact analysis indicated that it cost the government RM 180.4 million per year and 2.5% of the national health budget. **CONCLUSIONS:** Vaccination increase life expectancy with better QOL. Cost effective strategies will include increasing the Pap smear coverage to 70% or higher. Since feasibility and long term screening adherence is doubtful among Malaysian women; vaccination of young women is more cost effective strategy against cervical cancer.

PIH8

ESTIMATED HEALTH AND ECONOMIC IMPACT OF QUADRIVALENT HPV TYPES 6, 11, 16, 18 VACCINE IN THAILAND USING A TRANSMISSION DYNAMIC MODEL

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OBJECTIVES: The quadrivalent (6,11,16,18) HPV vaccine has been approved in Thailand for prevention of cervical cancer, vulvar/vaginal pre-cancers, and genital warts in women age 9 to 26 years. To assess the health and economic impact of the quadrivalent (6,11,16,18) HPV vaccine in Thailand. **METHODS:** A published mathematical model of the transmission dynamics of HPV infection and disease was adapted for Thailand. Model inputs were used from Thailand or the Asia/Pacific region when available; otherwise, the default values in the original model were used. Maintaining current cervical cancer screening practices in Thailand, we evaluated two strategies: routine vaccination of females by age 12 (S1), and S1 combined with a temporary (5 years) female catch-up program for age 12–24 years (S2). The vaccine coverage rates were 70% for the routine and 50% for the catch-up vaccination programs. The perspective of analysis was health-care system. **RESULTS:** The most effective strategy was S2. Using this strategy over 100 years in the population of Thailand, the estimated cumulative percent reduction in incident HPV 6/11/16/18-related genital warts-female, genital warts-male, cervical intraepithelial neoplasia (CIN) grade 1, CIN 2/3, and cervical cancer cases was 72%, 55%, 61%, 63%, and 48%, respectively. The cost-effectiveness ratios were Thai Baht 145,447 or US$4,453 (weakly dominated), and Thai Baht 131,845 or US$4,036 per quality-adjusted life-years (QALY) gained for S1 and S2 compared with no vaccination, respectively. **CONCLUSIONS:** In Thailand, vaccination of females age 12–24 years with a quadrivalent (6,11,16,18) HPV vaccine can reduce the incidence of cervical cancer, CIN, and genital warts at a cost per QALY ratio within the range typically regarded as cost-effective.

PIH9

COST EFFECTIVENESS OF CONTRACEPTIVES IN A PACIFIC REGION COUNTRY: COLOMBIA

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OBJECTIVES: To estimate the relative cost effectiveness of available contraceptives in a pacific region country (Colombia) from a social perspective. **METHODS:** A Markov model was constructed to simulate costs for 13 contraceptive methods and for no contraceptive method over a 10-year period, with a 5% discount rate. Failure rates, adverse event rates and resource utilization were derived from literature. Sensitivity analyses were performed on costs and effectiveness rates. **RESULTS:** The four least expensive methods per person month were: copper-T IUD (USD $0.34), vasectomy (USD $1.28), tubal ligation (USD $1.44) and implant (USD $2.19). The cost-effectiveness analysis of methods to prevent pregnancy showed: the Copper T IUD has a ratio of incremental cost-effectiveness (ICER) of USD $5,540 (per month, per pregnancy avoided) when it is contrasted with the vasectomy. The Vasectomy is dominant compared to tubal ligation, and it presents an ICER of USD $7.371 in relation to implant methods. Comparing Copper T with the second most affordable reversible method, an ICER of USD $12,033 was obtained. The order of results did not change with a discount rate of 0% but were sensitive to the time horizon. **CONCLUSIONS:** Differences in time horizon are influential factors that determine the dominance of contraceptive methods. It is noteworthy that although the cost of a tubal ligation and a vasectomy is the same, the total costs for a vasectomy are lower due to reduced complication-related costs. Given that the monthly premium of the compulsory health insurance in Colombia for a woman of childbearing age (19–44 years) is USD$22, the value of USD$12,033 or $5540 per month to prevent pregnancy through implant or vasectomy is excessive. Therefore, according to the case analysis, the Copper T is a cost-effective option for Colombia, including reversible and nonreversible methods.

PIH10

COST-EFECTIVENESS OF QUADRIVALENT AND BIVALENT HPV VACCINATIONS AGAINST CERVICAL CANCER

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OBJECTIVES: Cervical cancer is the second highest incidence of female cancers in Malaysia. This can be avoided by Pap smear screening and Human Papillomavirus (HPV) vaccination i.e., the bivalent vaccine (BV) and quadrivalent (QV). Three programs cost effectiveness (CE) options were compared i.e., screening via Pap smear; modeling of HPV vaccination (QV and BV) and combined strategy (screening plus vaccination). Scenario based sensitivity analysis using screening population coverage (40–80%) and costs of vaccine (RM 100–200/dose) were calculated. **METHODS:** This is a cross sectional study from 2006–2009 and respondents were interviewed from six public Gynecology–Oncology hospitals. Methods include experts' panel discussions to estimate treatment costs by severity and direct interviews with respondents using costing and quality of life questionnaires. **RESULTS:** A total of 502 cervical cancer patients participated with mean age at 53.3 ± 11.21 years, Malays (44.2%) and married for 27.73 ± 12.12 years. Cost/QALYs for Pap smear at base case is RM 1,214.96/QALYs and RM 1,100.01/QALYs at increased screening coverage. In QV only, cost/QALYs saved in base case are at RM 15,662/QALYs and RM 24,203/QALYs when vaccination price is increased. In BV only; cost/QALYs saved in base case is at RM 1359,057/QALYs and RM 2530,017.56/QALYs when vaccination price is increased. In QV combined strategy cost/QALYs at base case is RM 4937/QALYs; RM 3395/QALYs at best case and RM 7992/QALYs at worst case scenario. In BV combined strategy, cost/QALYs at base case is RM 6624/QALYs; RM 4033/QALYs at best case and RM 10,543/QALYs at worst case scenario. Incremental cost-effectiveness ratio (ICER) showed that screening at 70% coverage or higher is highly cost effective at RM 946.74 per QALYs saved and this is followed by best case combined strategy with QV at RM 13,000 per QALYs saved. **CONCLUSIONS:** QV is more cost effective than BV. The QV combined strategy is more CE than any method except Pap smear screening at high population coverage.

PIH11

IDENTIFYING COST-EFFECTIVE TREATMENT WITH RALOXIFENE IN POSTMENOPAUSAL WOMEN USING RISK ALGORITHMS FOR FRACTURES AND INVASIVE BREAST CANCER

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OBJECTIVES: Raloxifene (RLX) reduces the risk of vertebral fractures and invasive breast cancer (IBC). The National Osteoporosis Foundation (NOF) has recommended a threshold for treatment initiation of 10-year major fracture risk of 20%, but given RLX's beneficial efficacy on IBC it may be clinically beneficial and cost-effective to treat women with RLX even if they do not meet this threshold. The aim was to identify how 5-year IBC risk affects the cost-effectiveness of treating younger postmenopausal women who do not meet the 20% absolute fracture risk threshold with RLX compared to no intervention. **METHODS:** A micro-simulation model populated with data specific to American women was used to quantify the costs and benefits of 5-year treatment with RLX from a societal perspective. Possible events were vertebral fracture, IBC, VTE and death. EQ-5D societal health state values were used to estimate quality-adjusted life-years (QALYs). The population was selected based on 10-year major fracture risk as estimated with FRAX® (5–19.9%) and 5-year IBC risk as estimated with Gail risk model (1–5%). **RESULTS:** The cost per QALY gained ranged from US$17,100 to 93,000. RLX was progressively cost-effective with increasing fracture risk and IBC risk holding age constant. At lower fracture risk in combination with lower IBC risk or when no preventive RLX effect on IBC was assumed, the cost-effectiveness of RLX decreased markedly and was not cost-effective given a willingness-to-pay of US$50,000. At fracture risk of 15–19.9% RLX was cost-effective also in women at lower IBC risk. **CONCLUSIONS:** RLX is potentially cost-effective in young postmenopausal women at elevated IBC risk who do not meet the suggested NOF 10-year fracture threshold. This highlights the importance of considering a woman's full risk profile when deciding which anti-osteoporosis treatment to recommend.

PIH12

COST UTILITY ANALYSIS OF HPV VACCINATION WITH BIVALENT AS04 ADJUVANT VACCINE IN SLOVAKIA AND IMPACT OF VACCINE PROTECTION DURATION ON COST-EFFECTIVENESS ENDPOINTS

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OBJECTIVES: The study evaluated the cost effectiveness of the bivalent AS04 adjuvant vaccine in Slovakia and the correlation between vaccine protection duration and incremental cost effectiveness of HPV vaccination of 12-year-old girls with bivalent AS04 adjuvant vaccine in Slovakia. **METHODS:** A 1-year cycle Markov model (20—health state) used age-specific data on dysplasia or cervical cancer. A base case analysis assumed 98% vaccine efficacy against HPV—16/18 and 50% vaccination coverage.